PROBLEMS OF A CENSUS OF NATIONAL WEALTH

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This paper is essentially a summary of the book Measuring the Nation's Wealth *(Volume 29,* Studies in Income and Wealth, *New York: National Bureau of Economic Research, 1964), which is the report of study directed by the author. The purpose of the study was to assess the problems and possibilities of conducting a national census of real wealth as a basis for continuing wealth and balance sheet estimates for the U.S. economy, by major sector.*

It is stressed that the balance sheets and wealth estimates should be designed as a consistent part of an integrated system of national income accounts. Thus, valuation (at market prices and/or depreciated replacement costs), sectoring, and type-of-asset detail in the basic data and derived estimates should be compatible with the flow estimates contained in the economic accounts. Consistency of stock and flow estimates facilitates analysis of inter-relationships, and is helpful in the estimation process.

It is recommended that in the U.S. asset data by broad categories be collected as part of the recurring economic censuses and other reporting systems, but that detail on fixed reproducible assets (construction and equipment) at cost, by year or period of acquisition, be obtained from a small sample of respondents in each industry. The detail would be useful in its own right, and also permit revaluation of the assets by use of price indexes and depreciation rates to a current depreciated replacement cost basis. Where feasible, respondent estimates of market values would also be obtained.

The proposal is thus a compromise between the Japanese 1955 sample survey of assets, and the detailed wealth inventory of the U.S.S.R. which was begun in 1959. Preliminary work is now underway in the U.S. federal statistical agencies to expand collection of asset data, and to prepare comprehensive wealth estimates in the framework of the national income accounts.

In the context of this paper, the term "wealth" refers to the tangible, non-human productive assets of land and other natural resources, buildings and other structures, machinery and equipment, and inventory stocks. It is the "real" wealth which, together with net foreign claims, is equal to the national net worth that appears on a *consolidated* balance sheet for the nation. We shall mention the problems of estimating the financial assets and liabilities of a *combined* balance sheet only in passing, since these are generally less urgent than the problems posed by the reproducibles, and the basic data are more readily available.

The problems of estimating human wealth are also excluded from consideration in this paper. For many analytical purposes, both human and non-human investments and wealth must be considered together. Important progress is being made in the estimation of human capital. But the data and estimation problems are quite different from those encountered in dealing with material wealth, which is our assignment at this meeting.

Much of the material on which this paper is based is contained in *Measuring the Nation's Wealth,*[1] Report of the Wealth Inventory Planning Study, of which I was staff director during 1963–64. The Study, financed by a foundation grant, was set up to clarify the conceptual and statistical problems and do the necessary general planning as background for a possible wealth inventory to be conducted by the appropriate Federal statistical agencies. Nine so-called censuses of wealth had been taken between 1850 and 1922 in the United States, but dropped thereafter. A considerable body of wealth data continues to be collected, but there are important gaps. Balance sheet and wealth estimates have been prepared by Raymond Goldsmith using the perpetual inventory method for fixed reproducibles,[2] but he is the first to point to the need for a benchmark census and, indeed, was a leading spirit in setting up the Wealth Inventory Planning Study.

The Economic Statistics Subcommittee of the Joint Economic Committee of Congress held hearings on the Wealth Study report in June, 1965. It was generally sympathetic to the proposal for systematic wealth inventories in the United States, along the lines set forth later in this paper, and the Federal statistical agencies have begun the necessary preliminary planning. Although the full census program may not be achieved, it appears that significant improvements in wealth data and estimates will be made in the U.S. during the decade ahead.

Relationship of a Wealth Census to the Perpetual Inventory

By a census of wealth, we mean a more or less comprehensive survey, in some detail, of the numbers and/or value of tangible assets that were actually in stock as of a given date. This census "count" contrasts with the perpetual inventory method often used to estimate the value of fixed reproducible assets. The census approach has the advantage of determining those assets actually in the productive stock; the perpetual inventory approach is based on gross investment estimates for past years, and assumptions as to mortality of the component types of structures and equipment. It can produce erroneous gross stock estimates to the extent that past investment estimates were erroneous, and that assumed mortality patterns were, or become, inaccurate.

In addition to providing data on items actually in stock, the census would normally be conducted in more detail than the gross investment surveys and thus provides data for weighting mortality or depreciation rates and price deflators used in the perpetual inventory method. Further, the census approach can give

1. This Report was first printed by the Joint Economic Committee of Congress in December, 1964. It has subsequently been made available as Volume 29 of *Studies in Income and Wealth* by the National Bureau of Economic Research.

2. Raymond Goldsmith, *Studies in the National Balance Sheet of the United States,* 2 Vols., Princeton University Press for the National Bureau of Economic Research, 1963.

selected respondents the opportunity to estimate current, market values of their assets, as well as to report the original cost. By the perpetual inventory method, present value estimates are entirely constructed by the estimator.

Actually, the census and perpetual inventory methods may be complementary, rather than competitive. The census method establishes initial values from which net investment may be cumulated to yield subsequent annual estimates. Repetition of the wealth census every decade or so provides benchmarks for adjustment of the perpetual inventory estimates, which can develop cumulative biases. Further, the census detail is useful in its own right for special analyses, as well as providing the compositional information needed to process investment data for perpetual inventory purposes.

It should be made perfectly clear, however, that wealth estimates based on census data as well as on the perpetual inventory method involve a considerable amount of estimation work. This is particularly true of the stock estimates net of depreciation allowances. Even the gross stock estimates, if they are to be expressed in current prices, require either that the respondents estimate replacement cost, or that the data-collection agency obtain original cost data by type by age, and then apply appropriate price indexes for revaluations. In either case, asset prices indexes are required for deflation. The net stock estimates require a further step; in addition to price revaluation, depreciation allowances must be estimated. The alternative is to secure estimates of current market values of used assets from the owners, if feasible. Or, in both cases, physical unit data may be multiplied by price in secondhand markets, or by unit replacement cost (price new) if gross stock estimates are desired.

After all, the hard data which may be collected in a census relate to numbers and cost of assets, by type and industry. When current or constant values, net or gross of depreciation are desired, it is obvious that estimation work is required— though not as much as by the perpetual inventory method. It is because the census method is one stage closer to the basic data that it is useful as a supplement to the perpetual inventory approach—not because it eliminates the need for estimation.

Uses of Wealth Estimates

One often hears the cliché that the intended uses of economic data condition the form in which they are collected and presented. This is only partially true of the economic statistics that make up the national economic accounts. The economic accounts provide "general purpose" estimates adaptable to many uses, including uses which may not be clearly foreseen when the estimates are first put together. Nevertheless, some notions of important uses help in formulating the scope and structural detail in which the basic data are collected and the derived estimates are presented.

The chief broad use of all economic statistics is as a basis for analyses which increase our knowledge of the functioning of the economy in order the better to adapt to economic change, or to guide the economy through polices appropriate for attainment of given objectives. The use of economic accounts as a framework for projections is an integral part of both of these objectives.

With respect to specific analytical uses, considerable interest attaches to the composition of wealth estimates by type of asset, by sector and industry, and by region. More broadly, in terms of complete balance sheets, there is interest in the interrelationships of financial and real assets, and of debt to assets and to net worth. In particular, there is interest in the types of wealth for which there is inadequate representation in the income and product accounts, such as household and government capital goods. Indeed, balance sheets usefully supplement the income and product accounts in giving a different perspective to the study of economic change.

Yet the more interesting relationships are generally those between stocks and related flows. On the supply side, the role of tangible capital in the production function is well known. Similarly, "capital productivity" (the inverse of the capital coefficient) and its counterpart "labor productivity," together with the quantities of the two major factor classes, statistically "explain" economic growth. Several investigators are attempting to measure the real stocks of human capital in monetary terms, so that human and non-human wealth may be merged, and production analyzed as the product of wealth and the rate of return on wealth.[3]

By relating net income to capital stocks in the economy by industry, rates of return can be compared. Not only is this useful for public bodies concerned with regulation of particular areas, such as public utilities, banking, or agriculture, but it is important in investment analysis and projecton. The property share of factor income can be analyzed in terms of the capital-output ratio and rates of return. Stock estimates can also be used for capacity estimates, and thus in estimating rates of utilization of capacity, by industry, which are also related to new investment decisions.

In demand analysis, the "stock-adjustment" approach is gaining support. Clearly, the relative size of holdings of financial assets, particularly liquid assets, affects demand. Moreover, the size and age-composition of tangible assets affect the volume of current investment. Projections of output and of the capital-output ratio is a frequently used method of projecting net investment demand.

Many other types of uses were mentioned in the Wealth Study report by representatives of various user groups, and by specialists who comprised the Working Groups covering the various sectors and industry groups.[4] Since many of the important uses involved stock-flow relations, it seems clear that it would be advantageous from the standpoint of consistency for the wealth data to be collected in conjunction with data relating to production, employment, value added, and other flow variables. Further, the estimates should be prepared consistently with the national income and product estimates within an economic accounting framework so that the stocks and flows are readily comparable.

Many of the uses require a considerable degree of detail—by type of asset, age, industry (of use and/or ownership) and by region. There is a limit to the amount of detail that can conveniently be built into the economic accounts. Even with regard to the underlying data, a balance must be struck somewhere between

3. This approach was set forth in papers by Harry G. Johnson and John W. Kendrick in *The Residual Factor and Economic Growth,* O.E.C.D. 1964, pp. 213–227.

4. *Measuring the Nation's Wealth,* Appendix IA "Uses of Wealth Estimates," and Appendix II, "Sector Reports."

additional costs and the additional usefulness of greater detail. As indicated in a later section, the Wealth Study group recommended a compromise in this regard.

Requirements Posed by the Economic Accounting Framework

Integration of national economic accounts would facilitate analysis. Proposed systems usually comprise current production accounts and input-output tables, appropriation accounts, capital accounts showing saving, tangible investment and net changes in financial assets and liabilities (flow-of-funds), and the resulting end-of-period balance sheets. As work on wealth estimates and balance sheets proceeds, it is important to collect the basic data in such a way that it can be fitted into an integrated system of national accounts. This means that valuations, scope, and structure of the wealth data should be consistent with these dimensions of the current and capital accounts. If the degree of detail as to sectors, industries and types of assets is greater in the wealth data collections, it should at least be collapsible into national accounts categories; if the valuations differ, provision should be made for rendering them comparable. In the course of planning for wealth data and balance sheets, however, it may be found useful to alter the structure of the income and product accounts in some respects. Provision for consistency is not a one-way street!

Valuation. The national product is generally expressed in terms of market prices, or of unit costs in the case of non-market areas of the economy. Wealth should also be expressed in terms of current, market values (or proxies therefor) if it is to have a consistent meaning across industries and sectors as the present value of expected future net income streams (equal to the current cost of capital goods, in the case of newly purchased items). For temporal comparisons, it is customary to express both product and wealth in terms of constant prices.[5]

It is generally conceded to be desirable to attempt to value assets as the sum of the values of component items, by type, rather than as aggregate values of those collections of assets that make up the "going concerns" of the economy. The sum of components approach is consistent with the national income and product approach which shows new investment by type of capital goods. Further, it readily permits the price deflation of current value wealth estimates. The going-concern approach would not be practicable for sectors other than the business sector. Nevertheless, as part of the combined balance sheet of corporations (and possibly of unincorporated firms) it will be useful to show the value of equity. The difference between the value of assets and that of liabilities plus net worth could be carried as a balancing item. The movements of the balancing item itself would be of considerable interest indicating changes in the state of expectations and other factors that explain the difference between the alternative valuations.[6]

The need to obtain basic data either in terms of market values, or in terms that can be converted to market values, imposes perhaps the most difficult restraint on wealth data collections. As was pointed out above, respondents will usually have records of original costs of capital goods. In some instances, they may have good

5. *Ibid.,* Chapter 6, "Valuation-general approaches."
6. *Ibid.,* Appendix I H, "The Measurement of Capital," by Vernon L. Smith.

estimates of what the market price would be (as for houses and certain other types of real estate, farm implements, automobiles, etc., for which fairly active second-hand markets exist). But respondents should not be asked to report data they neither have nor have a good basis for estimating.

In the Soviet capital stock inventory and valuation begun in 1959, the statistical agencies furnished extensive price lists showing the actual or estimated 1955 values of new and old models of equipment, construction costs per cubic foot for various types of structures, etc., as a basis for consistent estimates of replacement costs. In addition, engineers supplied certain adjustment factors analogous to depreciation allowances to take account of wear and tear, and technological advance, over the lifetimes of the capital goods, using various handbooks prepared for the purpose.[7]

The Japanese, on the other hand, in their wealth survey of 1955, obtained original costs by age-classes for various types of capital goods; then, using more or less appropriate price indexes and depreciation rates assembled for the various categories, the Statistical Office estimated depreciated replacement costs.[8]

The Soviet use of price lists would hardly be feasible in the U.S., given the very large number of types and models of capital goods in stock, even if it were decided to make a complete inventory. The Japanese approach seemed more practicable, and it was essentially this method which was recommended for fixed reproducible goods by the Wealth Study. This means that original cost data must be obtained by type and age-class, at least from a sample of respondents; work on asset prices must be broadened; and additional studies on mortality (possibly in conjunction with the census) and on patterns of price depreciation in secondhand capital goods markets would have to be undertaken.

In this paper, we cannot go into the complex theoretical questions as to the meaning of replacement cost, when models have changed significantly, nor the adequacy of depreciated replacement cost as a proxy for market price. These questions have been discussed elsewhere[9]; it is obvious that these concepts are approximations to what is desired, and that the closeness of approximation depends importantly on the adequacy of the asset price index numbers, and the mortality and depreciation curves which are applied.

Inventory stocks pose relatively few problems. In some areas, such as agriculture, and for commodities that are of large value relative to the total, data on physical units and end-of-period unit values can be collected. When value data are collected, it is important to obtain at least broad type-of-commodity breaks, and the method of inventory accounting employed, so that the value data can be appropriately revalued. In the case of "LIFO" accounting, under which revaluation is most difficult, companies frequently have estimates of current market value of the inventory.

The valuation of land and other natural resources presents special problems.

7. *Ibid.,* Appendix I D, "The Soviet Capital Stock Inventory and Revaluation," by Adam Kaufman.

8. *Ibid.,* Appendix I E, "Wealth Surveys in Japan," by Yataka Shimizu.

9. John W. Kendrick "Some Theoretical Aspects of Capital Measurement" *American Economic Review,* Vol. LI, No. 2, May 1961; also "Problems in the Valuation of Tangible Assets," *1964 Proceedings* of the Business and Economic Statistics Section of the American Statistical Association.

Within the private sector, data on original cost by period of acquisition would make it possible for the estimating agency to trend the cost by relevant price indexes. The trouble in the United States is that, except for farm land, price indexes for land are virtually non-existent at present. The chief alternative is to obtain owner estimates of market value, if necessary with the aid of appraisers. In the case of site land, there is the further problem of separating the values of land and structures. In some cases, a separation is made for tax assessment purposes. Another approach is to estimate the value of the structures by the depreciated replacement method, and subtract it from the estimated market value of the real estate as a whole.[10]

In the old censuses of wealth in the United States, tax assessment values provided the basic data. The assessed values were multiplied by the average ratio of market to assessed values, estimated by county. This method worked moderately well for real property, but not for personal property. Assessed values are still reported, and the Census Bureau obtains both assessed and market values for a sample of real estate parcels that are sold during the period. This approach could serve as a check on estimates prepared in other ways.[11]

With respect to public lands, the Wealth Study recommended the creation of regional appraisal boards that would establish "shadow prices" to approximate market values, taking account of all relevant considerations, such as values of comparable private lands, the expected future income if leased out, and so forth. Capitalization of expected net income is now used by the Department of Interior to value leased mineral properties.

The Wealth Study Group also took a look at valuation of collectors' items and other man-made nonreproducible wealth. Due to the relative economic unimportance of this category, we shall not go into it here. In general, it was felt that for paintings, stamps, coins, and other categories with fairly active markets, reasonably good appraisals can be made. The reluctance of influential parts of the museum sector to have current values placed on their priceless cultural objects is another matter![12]

Sector and industry definitions. In addition to the definition of sectors and industries, there is the additional problem of deciding how to allocate producing units and their income or wealth among the sectors and, particularly, among the industries.

Ideally, sectors are defined in terms of collections of units which are relatively homogeneous with respect to economic motivations and behavior patterns, as contrasted with other sectors. In practice, the number of sectors used in economic accounts depends on data availability. Thus, in the United States, households are lumped with nonprofit institutions and private trust funds, but as adequate data are developed for each of these sub-sectors separately, they will be split. Similarly, it is hoped eventually to split the government sector among Federal, state, and

10. *Measuring the Nation's Wealth,* Appendix II F, "Report of the Working Group on Natural Resources Wealth."
11. *Ibid.,* Appendix I B, "Historical Censuses and Estimates of Wealth in the United States," by Stephen A. Hoenack.
12. *Ibid.,* Appendix II N, Annex A "The Valuation of Manmade Nonreproducible Wealth."

local governments. Within the business sector, the Commerce Department (which is responsible for the national income and produce estimates) will have to break out a financial sector if it deconsolidates the saving-investment account and expands it to show financial transactions as a link to balance sheets.

The chief problems arise in the deconsolidation of the nonfinancial business sector by industry groupings. The Standard Industrial Classification in the United States defines industries in terms of collections of establishments producing a common range of primary product. These classifications largely govern the collection of data by the economic censuses and other industry surveys. Recently, a Standard Enterprise Classification system has been developed, with considerably broader industry groupings (usually combinations of S.I.C. industries) considered meaningful for company statistics.

It seems clear that balance sheets must relate to industries of enterprises, since financial transactions and the financial assets and liabilities generally relate to the enterprise as a whole. The enterprise is classified according to its predominant type of outputs. With respect to the tangible wealth, however, it would be desirable to collect data for industries of establishments as well. Certainly, for production and productivity analysis, one would expect a closer relationship between capital and output for industries of establishments, since shifts in product mix would have less potential influence than for industries of companies, and technological factors would have more influence.

In addition to balance sheets for sectors and industries of enterprises, then, the real wealth components of the balance sheets would be shown in supporting tables for industries of establishments.[13] These estimates would be designed for use with industry product and input-output tables. The income estimates should correspondingly be prepared on a dual basis for the alternative industry groupings within the business sector.

The U.S. Bureau of the Census has recently developed tables which link the data it obtains on an establishment basis with the data obtained from companies by the Internal Revenue Service.[14] These tables are very useful in going from one system of classification to another. For example, the basic wealth data from industries of establishments can be revalued and the results combined appropriately in order to revalue the book-value data obtained from industries of companies.

A further problem is posed by the increasing relative importance of equipment leases, as well as of building rentals. Asset data must be collected from the owners, and for balance sheet purposes, the estimates should probably remain on this basis. But for purposes of production function analysis, it seems more appropriate to classify wealth in terms of the industries in which it is used. This would involve shifting wealth from the industries of ownership to the industries of use. In the industry income and product, and the input-output tables, it would also seem appropriate to count rentals paid as part of income originating in the industry. In the next section, a method is suggested for collecting data which makes it possible to adjust assets from an ownership to a use basis.

13. *Ibid.,* Chapter 4, "The Design of Wealth Inventories and Estimates."
14. *Enterprise Statistics: 1958,* Part 3 "Link of Census Establishment and IRS Corporation Data."

Types of Assets. Type-of-asset detail should be consistent with the categories shown in the capital accounts. The income and product accounts generally present rather broad categories, however, while the census of wealth would collect much greater detail which could be collapsed into the broader groupings for summary presentation.

The detail will be useful in its own right, not only for cross-sectional analysis, but also for time series analysis as successive censuses are taken. In addition to analytical use, the detail on types of assets, in conjunction with age data, will be necessary for revaluations, as explained earlier. The finer the detail, the more accurate the revaluation can be. The detail also provides information for deriving weights to assign price reflators to apply to broader book-value estimates during inter-censal years.

Mechanics of a Wealth Census

Relation to Other Statistical Programs. In the Soviet Union, the wealth inventory begun in 1959 was a separate operation, requiring elaborate preparations and relatively large cost. While the Japanese survey was based on sampling, it too was an independent canvass. To the contrary, the Wealth Study has recommended that in the United States the wealth inventory be taken in conjunction with the regular statistical reporting programs by adding special asset inquiries to the Census and other forms.

Tying asset inquiries into the regular reporting system promises greater economy and efficiency than a one-time census, by making use of existing overhead, including the experienced staffs of the several statistical agencies. Consistency with the flow data collected from the respondents on other schedules of the same forms would be ensured.

A minor disadvantage of the joint collection in the United States is that the various economic censuses are taken over a 5-year cycle, and the census of population and housing is taken decennially in years ending with "0". So even if the inventory period included years ending with "0", basic data collection would take five years, and require extrapolations to obtain global estimates. Not all industrial areas are covered by the Census Bureau in the decentralized U.S. Federal statistical system, which poses a problem of coordination.[15] Leadership would presumably be furnished by the Office of Statistical Standards in the Budget Bureau, with advice from the Office of Business Economics in the Commerce Department, the agency responsible for processing the raw statistical data into finished estimates for the national economic accounts. Fortunately, the basic reports for the sectors not covered by Census are generally taken on an annual basis, so asset schedules could be added for the key inventory year.

The regulatory agencies cover transportation, communications, public utilities, and finance. Federal government is canvassed by the General Services Administration and the Treasury Department. A few areas are not covered by any regular, comprehensive reporting system. The Wealth Study recommended re-

15. *Ibid.*, Chapter 8, "The Federal Statistical System."

sumption of a census of construction, and expansion of the census of business to cover additional service areas. The real estate industry is the other major gap; it was decided to explore the use of tax returns in this area.

As mentioned earlier, the Soviet inventory was a complete census, while the Japanese was a sample survey. The Wealth Study recommended what is essentially a compromise between these two approaches: broad questions would be asked on the censuses and other reports with comprehensive coverage; detail would be obtained from small samples of respondents within each industry group to provid a basis for distributing the aggregates.

Levels of Detail. The general asset inquiry would relate to the gross book value of assets at the beginning and end of the period, gross additions (new investment) sales and other retirements. Because of the new 1962 revenue code in the U.S. which permits group depreciation, depreciation data are no longer generally available from establishments, but net stock and depreciation data can be obtained from companies in addition to gross stock estimates. Actually, since the estimating agency will calculate depreciation using consistent formulae across industries, and through time, it is not so important to obtain business depreciation data which contain various inconsistencies, in any case.

The asset data would be requested in terms of broad groupings: land, structures, equipment, and inventories; and within each of these groups by a few additional categories readily obtainable across the board. For example, equipment may be broken down into the categories of office equipment, transportation equipment, production equipment, and other. Inventory data are already collected by stages of fabrication.

The book value of assets rented out would also be requested, together with supplemental questions on rentals received, and rentals paid, by the broad categories of assets. This information would permit rough adjustment of asset ownership data to a use basis.

In those cases in which exploratory studies indicate respondents would have good notions as to the current value of assets, space would be provided to permit the entry of estimated replacement and market values in addition to book values.

The data would automatically come in as much industry and geographical detail as is built into the census and other reporting systems. In the United States, the censuses generally present 4-digit S.I.C. industry detail, and county, metropolitan area, and state detail (unless disclosure of individual company data results) in addition to national. The Wealth Study recommended processing of the data into estimates only for 2- or 3-digit industries, and for states and major metropolitan areas. The greater detail would be available on tape to researchers, of course.[16]

The detailed listing of assets still in use or active standby status on the inventory date, by basic type, cost, and year or period of acquisition, would be requested from a small sample of private establishments (including central offices and auxiliaries). Plans for the detailed inquiry would be finalized only after consultations with industry, pilot studies, feasibility tests and pretests of the schedules.

16. *Ibid.,* Chapter 12, "Summary Guidelines."

Presumably, the forms would be open-ended, and the respondents would list each basic type and model of equipment, etc., drawing on their equipment card files or other property records. For each type of equipment, the number of physical units and their cost by year and period of acquisition would be shown. Annual data would be desirable for the several most recent years. Before that, periods several years in length should suffice. The periods could be longer as one goes further back in time. Possibly, the particular span of years included in the periods should be determined in part by epochs of price movements of capital goods, since a primary purpose of the age detail is for revaluations. Special designation should be given those items purchased secondhand (possibly with indication of estimated year or period of manufacture). If exploratory studies show that any significant portion of respondents can make fair estimates of replacement value (as for insurance purposes) or of sales value,[17] space should be provided for these entries.

The results would be tabulated by types of equipment, possibly using the 7-digit commodity codes in the machinery and equipment area as a point of departure. If conversations with industry representatives indicate it would be helpful, these lists and code-numbers could be provided the respondents in the samples, along with the forms of their listings.

In the case of buildings and other structures, these should be listed separately by major types, showing also the costs and dates of major alterations or additions. Land would be listed by major categories of usage, to be provided by the statistical agency. Estimated market value as well as cost would be requested here. Inventories would be reported by major types of commodities, with unit data as well as value for specific types that are important.

The U.S. Federal Government, through the General Service Administration, had already conducted a complete inventory of structures, by type, in the 1950's. This is kept up-to-date by annual reports of change—additions and retirements. Agencies report equipment only in aggregate at original cost in an annual report of all assets, by broad categories, to the Treasury Department. The Wealth Study recommended a comprehensive inventory of equipment, parallel to that of structures, to be conducted by the G.S.A. In this case, a complete count, rather than the sample survey recommended for private industry, seems warranted since it would be useful for internal property management purposes, including disposal of excess or surplus property, and new investment planning.[18] It will also make possible estimates of total capital stocks, by agency, useful for governmental productivity studies.[19]

State and local governments are covered by a census of governments. Unfortunately, the property records of many state and local governments in the U.S. are not in good condition, and educational work will have to be done by the Census Bureau in advance of the property inventory.

17. Cf. Tibor Barna, "Alternative Methods of Measuring Capital," Income and Wealth, series VIII; also "On Measuring Capital," in The Theory of Capital, edited by F. A. Lutz and D. C. Hague.
    18. Measuring the Nation's Wealth, Appendix II A, "Report of the Working Group on Federal Government Wealth."
    19. U.S. Bureau of the Budget Measuring Productivity of Federal Government Organizations, 1964.

In the household sector residential structures and major household durables are covered by the census of housing, although the latter should also be enumerated in value terms as well as in terms of units in the inventory year. The Wealth Study recommended that the other (many) household tangibles be surveyed by several groupings,[20] each covered through a separate small sample of households. Original cost and approximate year or period of acquisition would be requested. For some major items in addition to those already covered by the census, numbers of units would be requested as well as cost.

Financial assets of households were covered by the Federal Reserve Board in a highly skewed, small sample survey in 1963. This would serve as the point of departure for asomewhat larger survey in the inventory year. The Wealth Study recommended that assets of sole proprietors also be covered by the household surveys. The financial assets of corporations and partnerships are already reported in balance sheets submitted annually to the Internal Revenue Service. In the Census Year, the I.R.S. balance sheets will be expanded somewhat to provide needed additional detail, and submission could be made mandatory for partnerships, rather than voluntary as at present.

Obviously, the detailed asset inquiries would represent a major burden on respondents, as well as the governmental statistical agencies. The costs can only be justified by the expected major benefits, which should be sold to the respondents to obtain maximum cooperation. After all, both the Japanese and Russians obtained just such detailed data, and the Russians also made engineering estimates of the condition of structures and equipment.

While the Wealth Study Advisory Committee felt that the comprehensive census is not required in depth, it is apparent that the detailed listings from a sample of respondents would be indispensable if the global book-value data are to be processed into current value estimates with a reasonable degree of accuracy. The detail will also be valuable in its own right, particularly in analyzing the markets for capital goods.

Benchmarks and Continuing Estimates

The wealth census provides the data for benchmark estimates of wealth in considerable detail. Extensions from the benchmark estimates would be based on less comprehensive data. To some extent, these would rest on sample surveys

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20. The several groupings, which include the several items already covered in the census of housing follow:
1. Houses
2. Automobiles
3. Major household appliances
4. Small household appliances
5. Major recreational durables
6. Furniture and floor covering not attached
7. Other major durables, not elsewhere classified
8. Small household durables
9. Clothing and semidurable home furnishings
10. All other (incl. toys, sports equipment, hobbies, books, jewelry and watches.)

The item composition of these groups is listed in Annex B, Appendix II-C of *Measuring the Nation's Wealth*, pp. 467–469.

of asset stocks, necessarily so in the case of inventories, land and natural resources. In the case of fixed, reproducible assets, presumably the cheapest method of extrapolation would be by the perpetual inventory approach. This method also has the advantage of tying in nicely with the income and product accounts, assuming a deconsolidation of the saving-investment account by sector.

I will make only a few comments about this method since it is the subject of a companion paper in this session. In the first place, our discussion indicates the underlying capital formation data should be collected for industries of establishments as well as of companies, if the dual industry disaggregation of the business sector is to be effectuated. The method also throws a greater burden on investment surveys, and requires that they be strengthened in terms of sample-size, and elaborated somewhat with respect to industry and major product breaks.

It will also be desirable for the estimator using the perpetual inventory method to keep an eye on the book-value data obtained from the annual sample surveys. Given the census detail, the book-value information can be revalued much more accurately than previously possible, and will help supplement the gross investment data as a basis for annual extrapolations of the benchmark wealth estimates. Experience with several successive benchmarks, and the adjustments they necessitate in the annual extrapolations, will teach us more concerning use of the perpetual inventory and associated methods.

PROBLEMES POSES PAR UN RECENSEMENT DE LA RICHESSE NATIONALE

Cet article est essentiellement un réhumé du livre Mesure de la richesse de la Nation (Measuring the Nation's Wealth, *vol. 29, Studies in Income and Wealth, New York, National Bureau of Economic Research, 1964) qui rend compte d'une étude dirigée par l'auteur. L'objet de cette étude était d'examiner les problèmes posés par la réalisation d'un recensement national de la richesse réelle qui servirait de base à des estimations ultérieures de richesses et à l'établissement de bilans pour l'économie des Etats-Unis, par grands secteurs.*

On insiste sur la nécessité d'intégrer ces estimations dans le système de comptes nationaux. Ainsi les questions d'évaluation (aux prix du marché et/ou aux coûts de remplacement après amortissement), de sectorialisation, de nomenclature détaillée des éléments d'actifs dans les données de base et dans les calculs doivent être traitées en conformité avec les solutions adoptées pour les calculs de flux dans les comptes économiques. La cohérence des estimations de stock et de flux facilite l'analyse de leurs relations mutuelles ainsi que le processus d'estimation lui-même.

On recommande pour les Etats-Unis de réunir les données sur les grandes catégories d'actifs à propos des recensements économiques courants et d'autres questionnaires généraux, mais de rechercher les données détaillées sur les éléments de capital fixe reproductible (construction et équipement), par année ou par période d'achat, dans des enquêtes auprès de petits échantillons dans chaque branche. Le détail serait utile par lui-même et permettrait également la révaluation de l'élément

d'actif sur une base de coût de remplacement courant au moyen d'indices de prix et de taux de dépréciation. Si possible, il faudrait obtenir également des réponses donnant des estimations de la valeur marchande de ces éléments d'actifs.

La proposition faite est ainsi un compromis entre l'enquête par sondage sur les actifs réalisée au Japon en 1955 et l'inventaire détaillé de la richesse en U.R.S.S. qui fut commencé en 1959. Un travail préliminaire d'élargissement de la collecte de données sur les éléments d'actifs est actuellement en cours dans les organismes statistiques fédéraux des Etats-Unis pour préparer des estimations plus générales de la richesse dans le cadre des comptes nationaux.